UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,883	06/28/2001	Hong Man Moon	8733.426.00	3032

7590 07/14/2004

MCKENNA LONG & ALDRIGE LLP
1900 K STREET, N.W.
WASHINGTON, DC 20006

EXAMINER
RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/892,883	MOON ET AL.	
	Examiner	Art Unit	
	Timothy L Rude	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-5 and 10-20* is/are allowed.

6)☒ Claim(s) *6,8 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claim 6 is amended.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Tanaka et al (Tanaka) USPAT 4,295,711.

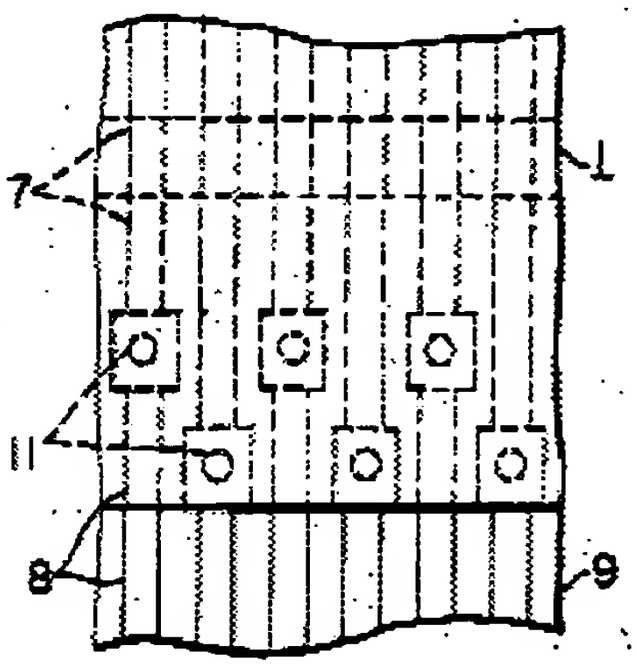
As to claims 6, 8, and 9, APA teaches in Figures 1-4 a conventional in-plane switching mode liquid crystal display device comprising: a plurality of data lines, 52, for applying data signals to a thin film transistor array; a plurality of gate lines, 54, for applying gate signals to the thin film transistor array; and a plurality of common voltage lines connected to common voltage pads, 80, for applying a common voltage to the thin film transistor array, (Specification, page 6, lines 7-14) wherein the common voltage lines, 87, provided in an outer area of the thin film transistor array cross the plurality of

gate lines and are spaced from the transistor array by a predetermined distance (as predetermined by the mask used to form said common voltage lines). It is noted that the common voltage lines provided in an outer area of the thin film transistor array are spaced from the transistor array by a predetermined distance as a necessary function of the design and manufacture of the conventional device of APA regardless of any lack of explicit disclosure of what said predetermined distance happens to be.

APA does not explicitly disclose a display wherein the predetermined distance is greater than or equal to 1mm (claim 6); equal to or greater than 1mm and less than or equal to 1.5mm (claim 8); or greater than 1.5mm (claim 9) to prevent deterioration of liquid crystal generated in said outer area from being diffused into the thin film transistor array, although it may be very likely that numerous conventional in-plane switching mode liquid crystal display devices comprising the above features were marketed in the United States more than one year prior to the claimed invention.

Tanaka teaches in Figures 1-5 the use of terminal and conductor (Applicant's line) spacing in the ranges of 1.5mm or more (col. 1, lines 5-18) and 1.0mm or more (col. 1, lines 22-34) in order to connect them to an external circuit.

FIG. 5a



Tanaka is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a predetermined distance that is greater than or equal to 1mm; equal to or greater than 1mm and less than or equal to 1.5mm; or greater than 1.5mm in order to connect them to an external circuit.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the predetermined distance of Tanaka that is greater than or equal to 1mm; equal to or greater than 1mm and less than or equal to 1.5mm; or greater than 1.5mm in order to connect them to an external circuit.

3. Claims 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Kabuto et al (Kabuto) USPAT 5,151,689.

As to claims 6, 8, and 9, APA teaches in Figures 1-4 a conventional in-plane switching mode liquid crystal display device comprising:. a plurality of data lines, 52, for applying data signals to a thin film transistor array; a plurality of gate lines, 54, for applying gate signals to the thin film transistor array; and a plurality of common voltage lines connected to common voltage pads, 80, for applying a common voltage to the thin film transistor array, (Specification, page 6, lines 7-14) wherein the common voltage lines, 87, provided in an outer area of the thin film transistor array are spaced from the transistor array by a predetermined distance (as predetermined by the mask used to form said common voltage lines). It is noted that the common voltage lines provided in an outer area of the thin film transistor array are spaced from the transistor array by a predetermined distance as a necessary function of the design and manufacture of the conventional device of APA regardless of any lack of explicit disclosure of what said predetermined distance happens to be.

APA does not explicitly disclose a display wherein the predetermined distance is greater than or equal to 1mm (claim 6); equal to or greater than 1mm and less than or equal to 1.5mm (claim 8); or greater than 1.5mm (claim 9) to prevent deterioration of liquid crystal generated in said outer area from being diffused into the thin film transistor array, although it may be very likely that numerous conventional in-plane switching mode liquid crystal display devices comprising the above features were marketed in the United States more than one year prior to the claimed invention.

Kabuto teaches a number of embodiments to shield a line or move a line away from the display area as a results effective variable to avoid deterioration of the liquid crystal caused by a DC electric field between the common voltage potential and a signal line (col. 11, line 62 through col. 12, line 42). Please note that optimization of a results effective variable requires only routine skill in the art of liquid crystals (MPEP 2144.05 II B).

Kabuto is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to use a predetermined distance that is greater than or equal to 1mm; equal to or greater than 1mm and less than or equal to 1.5mm; or greater than 1.5mm in order to avoid deterioration of the liquid crystal caused by a DC electric field between the common voltage potential and a signal line.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the results effective variable of Kabuto optimized to a predetermined distance that is greater than or equal to 1mm; equal to or greater than 1mm and less than or equal to 1.5mm; or greater than 1.5mm to avoid deterioration of the liquid crystal caused by a DC electric field between the common voltage potential and a signal line.

Allowable Subject Matter

4. Claims 1-5 and 10-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 1, relevant prior art of record did not disclose, alone or in combination, an in-plane switch mode liquid crystal display device as claimed comprising: *"a plurality of dummy signal lines parallel to the common voltage lines and adjacent to the common voltage lines for applying alternating current signals".* It is noted that although prior art exists wherein electrostatic shorting dummy lines are formed in the off-display region, they do not meet the claim means plus function recitations.

The closest combination is Komatsu in view of Zhang et al (Zhang) USPAT 5,956,009 but the combination does not teach all recitations of the claim. References exist that teach the use of dummy lines to electrically isolate signal lines in the display area and to provide testing capabilities or electrostatic protection etc, but there is no motivation to combine references to comprise the specific invention as claimed.

As to claim 10, relevant prior art of record did not disclose, alone or in combination, an in-plane switch mode liquid crystal display device as claimed comprising: *"at least one dummy data line, parallel to said data lines, for applying a*

compensation signal"; wherein the common voltage lines are provided outside the thin film transistor array, and wherein the common voltage lines are spaced a predetermined distance from the thin film transistor array. It is noted that although prior art exists wherein electrostatic shorting dummy lines are formed in the off-display region, they do not meet the claim means plus function recitations.

The closest combination is Komatsu in view of Zhang et al (Zhang) USPAT 5,956,009 but the combination does not teach all recitations of the claim. References exist that teach the use of dummy lines to electrically isolate signal lines and to provide testing capabilities or electrostatic protection etc, but there is no motivation to combine references to comprise the specific invention as claimed.

As to claims 2-5 and 11-20, they are directly or indirectly dependent upon claims with allowable subject matter above.

Response to Arguments

Applicant's arguments filed on 30 April 2004 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Applied prior art does not disclose the with the features of amended claim 6.

(2) Tanaka does not explicitly teach the spacing of leads or conductor lines.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that APA discloses the newly added feature of claim 6.

(2) It is respectfully pointed out that it would have been obvious to those having ordinary skill in the art of liquid crystals at the time the claimed invention was made, that the teaching of making needed electrical connections, and the required spacing for same, is applicable to any and all leads or conductors because a lead or conductor is, for the purpose intended, useless without being electrically connected. Examiner maintains rejections are proper. Furthermore, the applied prior art is considered to be evidence that a high percentage of displays have been in production for many years prior to Applicant's claimed invention with common line spacing that meets Applicant's claimed spacing limitation, since geometries of earlier displays were generally larger (fewer pixels per square inch and wider line spacing), since the trend is to go smaller. Lastly, Applicant teaches that unacceptable deterioration of liquid crystal material and display performance would be present in the outermost pixel rows and columns of those early displays if they did not have the claimed minimum common line spacing; since many early displays have no such deterioration, they must have Applicant's claimed common line spacing based on Applicant's own enabling disclosure.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

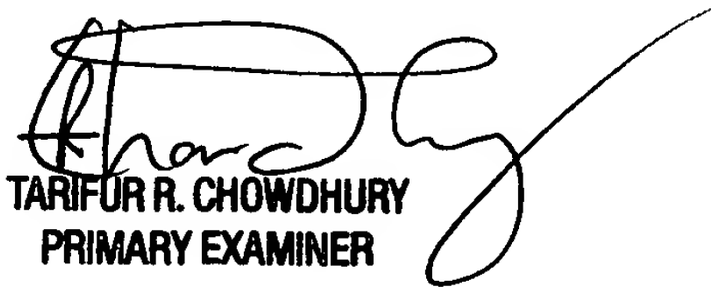
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tlr

Timothy L Rude
Examiner
Art Unit 2871



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER